

## OUTLINE - THE SKELETON

### Problem

- 1.

### Solution

- 1.
- 2.
- 3.
- 4.

### Functions of Bone 7.15b <skeleton model>

#### Support

#### Shape

- 1.

#### Protection

- 1.

#### Lever

- 1.

#### Blood Cell Formation

- 1.

#### Storage of Inorganic Salts

- 1.

- 2.

### Bone Structure

#### Shapes <skeletal model>

- 1.
- 2.
- 3.
- 4.
- 5.

#### Macroscopic Parts

##### External 7.2

##### Internal (tp7-3)

##### Spongy Bone

##### Compact Bone

#### Microscopic Parts 7.5

##### Compact Bone

- 1.

- 2.

Spongy Bone

1.

Organization of the Skeleton <skeletal model>

1.

Axial 7.15a

Appendicular

Visceral

1.

Maxilla

Mandible

Ear Ossicles 12.10

Hyoid Bones 7.16

Larynx

Styloid Process

Tracheal Rings

Miscellaneous

Paranasal Sinuses 7.25

1. meatuses

2.

Wormian/Sutural Bones 7.14

Sesamoid Bones 7.45 <foot>

Vertebral Column Curvatures 7.32

Intervertebral Disks

1.

2.

Pectoral and Pelvic Girdles

Arches (7-11)

1.

2.

## Joints

1. <foot>

### Fused

1.

2.

### Synarthroses

1.

2.

Syndesmosis 8.1

Suture 8.2

Gomphosis 8.4

### Amphiarthroses

1.

2.

Synchondrosis 8.5

Symphysis 8.6

### Diarthroses

1.

2.

3.

Parts 8.7, 8.8

1.

### Synovial Membrane

1.

a.

b.

### Types of (freely movable) Movement

1.

2.

3.

4.

### Types of Diarthroses 8.9

1.

2.

3.

4.

5.

6.

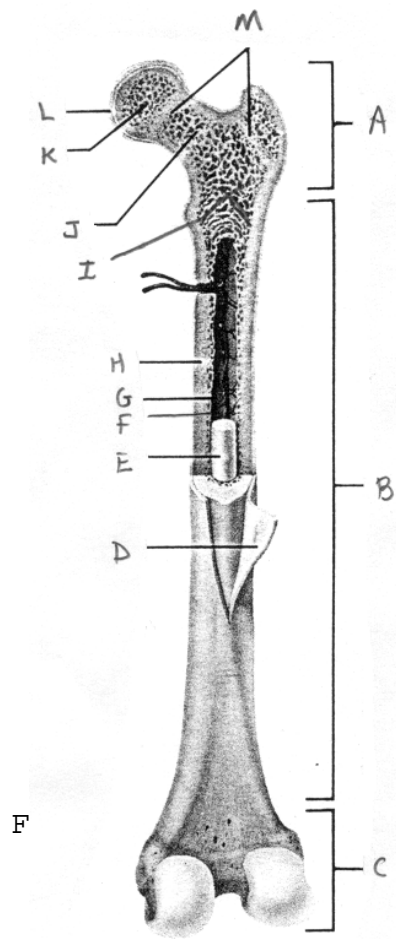


Fig 7.2

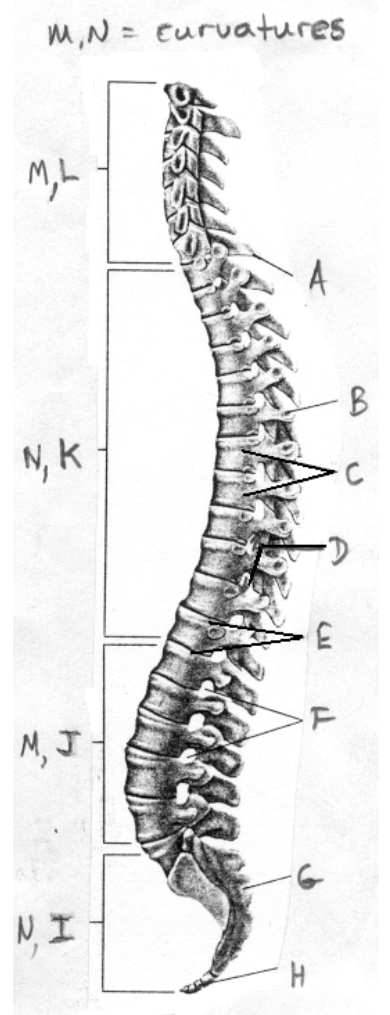
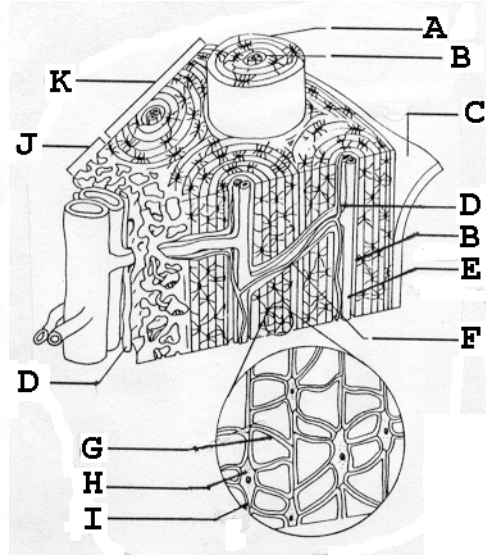


Fig 7.34

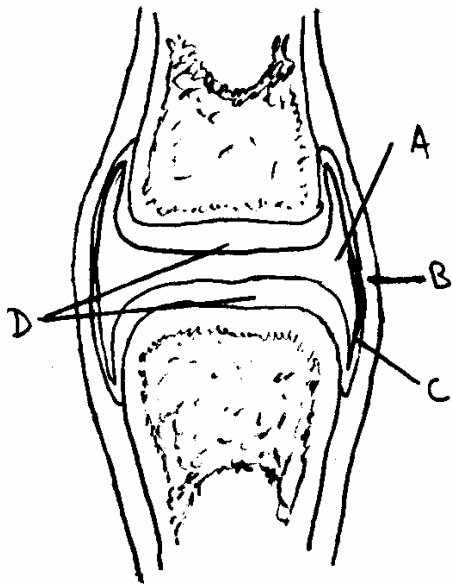


Fig 8.7

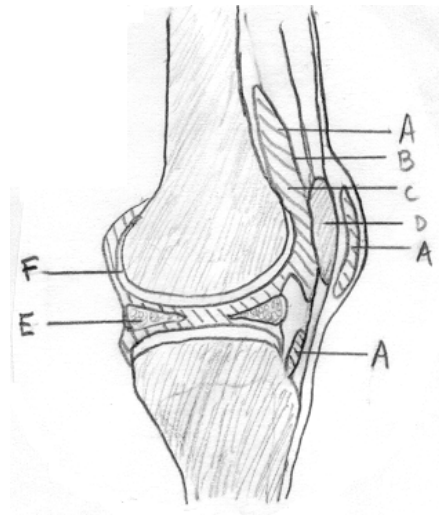


Fig 8.8

## STUDY SHEET - THE SKELETON

### Principles

Bone contains 1\_\_\_\_\_ tissue and 2\_\_\_\_\_ tissue. Bones are found in five major shapes: 3\_\_\_\_\_. Be prepared to give an example of each. The 4X\_\_\_\_\_ and 5X\_\_\_\_\_ cartilage form a capsule around the bone. The articular cartilage is 6\_\_\_\_\_ cartilage. The 7\_\_\_\_\_ give strength to the bone while reducing its weight. They follow lines of 8\_\_\_\_\_. They will change their 9\_\_\_\_\_ if stresses change due to growth or injury. The 10\_\_\_\_\_ property of bone enables this to occur. 11X\_\_\_\_\_ marrow is concerned with blood production or hematopoiesis. The 12\_\_\_\_\_ marrow is for fat storage. The 13\_\_\_\_\_ is a hole in the bone through which blood vessels pass. An 14X\_\_\_\_\_ is a mature bone cell. Compact bone contains an intercellular matrix of 15\_\_\_\_\_ and inorganic salts of 16\_\_\_\_\_. The 17\_\_\_\_\_ is capable of depositing bone or removing bone from the 18\_\_\_\_\_ of the 19\_\_\_\_\_ or the 20\_\_\_\_\_. Spongy bone is made of 21\_\_\_\_\_ material. It is nourished by 22X\_\_\_\_\_ from red marrow.

Name the six major functions of bone: 23\_\_\_\_\_. The crystals of rigid, inert material in bone are made of 24\_\_\_\_\_. Calcium is needed for 25X\_\_\_\_\_. Bone also stores 26\_\_\_\_\_ and lesser amounts of 27\_\_\_\_\_. 28\_\_\_\_\_ are elements with properties similar to calcium, thus, they are sometimes stored in bone where they can cause toxicity or cancer. There are 29\_\_\_\_\_ bones in the skeleton, but the number varies. The skeleton is divided into three major portions: 30\_\_\_\_\_. The axial portion has four major functions. Name them: 31\_\_\_\_\_. The appendicular skeleton has two major functions. Name them: 32\_\_\_\_\_. The visceral skeleton consists of the 33X\_\_\_\_\_. Many of these parts do not articulate with other bones. The four major paranasal sinuses in the skull are 34\_\_\_\_\_. Their functions are to 35\_\_\_\_\_ the skull and give 36\_\_\_\_\_ to the voice. 37\_\_\_\_\_ bones are the major reason the number of bones is not fixed at 206.

There are 38X\_\_\_\_\_ cervical bones, 39X\_\_\_\_\_ thoracic bones, 40X\_\_\_\_\_ lumbar bones, 40a\_\_\_\_\_ sacral bones (fused into 1), and 41\_\_\_\_\_ coccygeal bones (fused into 2).

Intervertebral discs act as 42\_\_\_\_\_ between vertebral bones. There they help to soften 43\_\_\_\_\_ when walking, running and jumping. The outermost layer is called the 44\_\_\_\_\_. It is made of 45\_\_\_\_\_. The innermost layer is called the 46\_\_\_\_\_. It is made of 47\_\_\_\_\_. A 48\_\_\_\_\_ occurs when the anulus fibrosus ruptures and the nucleus pulposus spills out the hole. The 49\_\_\_\_\_ girdle is not complete. This allows movement for 50\_\_\_\_\_. The 51\_\_\_\_\_ girdle is complete because it has to support weight of most of the body. The ilium ischium and pubis are collectively known as the 52\_\_\_\_\_.

The two arches in the foot are the 53\_\_\_\_\_. They are shaped this way to support the weight of the 54\_\_\_\_\_.

The four basic types of joints are 55X\_\_\_\_\_. Know what type of movement each one allows: 56\_\_\_\_\_. Be prepared to give an

example of each kind: 57X\_\_\_\_\_. The function of diarthroses is to allow movement at joints without 58X\_\_\_\_\_. The 59X\_\_\_\_\_ cartilage in the knee joints acts as a shock absorber. It is made of 60\_\_\_\_\_.

The four basic types of movement are 61X\_\_\_\_\_. The six types of fully-movable joints are 62X\_\_\_\_\_. Be able to identify the type(s) of movement permitted by each joint and give an example of each: 63\_\_\_\_\_.

ANSWER SHEET - THE SKELETON

- |  |  |
|--|--|
| 1. epithelial, connective  | 36. resonance  |
| 2. nerve   | 37. sesamoid and wormian                                 |
| 3. flat, irregular, long, short<br>round, sesamoid   | 38. 7  |
| 4. periosteum  | 39. 12   |
| 5. articular   | 40. 5  |
| 6. hyaline   | 40a. 5   |
| 7. trabeculae  | 41. 4  |
| 8. stress  | 42. shock absorbers                                      |
| 9. position  | 43. compression  |
| 10. piezoelectric  | 44. anulus fibrosis                                      |
| 11. red  | 45. fibro cartilage                                      |
| 12. yellow   | 46. nucleus pulposus                                     |
| 13. nutrient foramen   | 47. elastic cartilage                                    |
| 14. osteocyte  | 48. slipped disc   |
| 15. collagen   | 49. pectoral   |
| 16. Ca, P  | 50. respiration  |
| 17. osteocyte  | 51. pelvic   |
| 18. wall   | 52. os coxa  |
| 19. canaliculi   | 53. transverse, longitudinal                             |
| 20. lacuna   | 54. body   |
| 21. osteocytes, intercellular  | 55. fused, synarthroses,<br>amphiarthroses               |
| 22. diffusion  | 56. (degrees of movement)                                |
| 23. support, shape, protection,<br>levers, blood cell formation,<br>storage of inorganic salts   | 57. (example)  |
| 24. calcium phosphate hydroxyapatite   | 58. friction   |
| 25. blood clotting, nerve impulse<br>conduction, muscle cell<br>(precessing),<br>contraction     | 59. semilunar  |
| 26. P  | 60. fibrocartilage                                       |
| 27. Mg, Na   | 61. rotating, arcing,<br>circumduction                   |
| 28. radium, strontium, lead  |  |
| 29. 206  | sliding  |
| 30. axial, appendicular, visceral  | 62. pivot, hinge, condyloid,<br>ball and socket, saddle, |
| 31. houses brain, protects spinal<br>cord, protects thoracic cavity,<br>allows flexible movement | 63. (movement and example)                               |
| 32. support to limbs, movement   |  |
| 33. mandible, hyoid bone, styloid<br>process, ear ossicles, larynx<br>and tracheal rings         |  |
| 34. sphenoid, frontal, ethmoid,<br>maxillary   |  |
| 35. lighten  |  |